CLAIMS

We claim:

1. A method for adhering neural tissue, comprising:

contacting a first tissue and second tissue, each comprising a neural segment, and at least one photosensitizer agent to form a tissue-photosensitizer complex; and

applying electromagnetic energy to the tissue-photosensitizer complex in a manner effective to bond the tissues,

thereby creating a tissue seal between nerve segments.

2. The method of claim 1, wherein the neural segment is contained within an epineurial connective tissue sheath.

3. The method of claim 2, wherein the photosensitizer is contacted with an exposed surface of the epineurial connective sheath.

4. The method of claim 1, wherein at least one photosensitizer agent is selected from the group consisting of a xanthene, flavin, pyridine, phenothiazine, triphenylmethyl, cyanine, flavin and porphyrin.

5. The method of claim 4, wherein the xanthene is Rose Bengal.

6. The method of claim 1, wherein the contacting steps occurs *ex vivo*.

7. The method of claim 1, wherein the contacting steps occurs *in vivo* in a subject.

8. The method of claim 7, wherein the subject is a human.

9. The method of claim 1, wherein the application of electromagnetic energy to the tissue-photosensitizer complex occurs without substantial thermal tissue damage.

10. The method of claim 1, wherein the electromagnetic energy is applied at an irradiance less than 1.5 W/cm^2.

11. The method of claim 1, wherein the electromagnetic energy is applied at an irradiance of about 0.50 W/cm^2.

12. The method of claim 1, wherein a collagen gel is wrapped circumferentially around the neuronal segments before said segments are contacted with the photosensitizer agent.

13. The method of claim 1, wherein the neuronal segments comprise peripheral neurons.

14. A method for adhering neural tissue, comprising:

placing a first tissue and second tissue, each comprising a neural segment, in a conduit;

contacting the first tissue and second tissue with at least one photosensitizer agent to form a tissue-photosensitizer complex; and

applying electromagnetic energy to the tissue-photosensitizer complex in a manner effective to bond the tissues,

thereby creating a tissue seal between nerve segments.

15. The method of claim 14, wherein at least one photosensitizer agent is selected from the group consisting of a xanthene, flavin, pyridine, phenothiazine, triphenylmethyl, cyanine, flavin and porphyrin.

16. The method of claim 15, wherein the xanthene is Rose Bengal.

17. The method of claim 14, wherein the conduit is a collagen conduit.

18. The method of claim 14, wherein a circumferential, watertight seal is created between the neuronal segments.

19. The method of claim 14, wherein the intraneural neurotrophic and neurotropic environment is maintained within the conduit.